

Claims

- [c1] 1. An apparatus comprising: a controller which calculates a maximum sustainable speed of a hybrid electric vehicle; and a display which is coupled to said controller and which displays said calculated maximum sustainable speed.
- [c2] 2. The apparatus of Claim 1 wherein said controller continually calculates said maximum sustainable speed as said hybrid electric vehicle is being operated and wherein said displayed maximum sustainable speed is continually updated as said hybrid electric vehicle is being operated.
- [c3] 3. The apparatus of Claim 1 wherein said controller calculates a second maximum sustainable speed of said hybrid electric vehicle and causes said second maximum sustainable speed to be displayed only if said second maximum sustainable speed differs from said previously calculated maximum sustainable speed by a predetermined amount.
- [c4] 4. The apparatus of Claim 1 wherein said controller calculates said maximum sustainable speed by the use of an amount of rolling resistance between at least one tire of said hybrid electric vehicle and a surface, an amount of aerodynamic drag which is applied to said hybrid electric vehicle, an amount of inclination force which is applied to said hybrid electric vehicle, and an amount inertial force which is applied to said hybrid electric vehicle.
- [c5] 5. The apparatus of Claim 3 wherein said amount of rolling resistance between said at least one tire of said hybrid electric vehicle and said surface is calculated by use of the weight of said vehicle.
- [c6] 6. The apparatus of Claim 5 wherein said hybrid electric vehicle is operated at a speed and wherein said amount aerodynamic drag is calculated by the use of said speed of said hybrid electric vehicle.
- [c7] 7. The apparatus of Claim 6 wherein said hybrid electric vehicle accelerates by a certain amount and wherein said certain amount of inertial force is calculated by the use of said certain amount of acceleration of said hybrid electric vehicle.
- [c8] 8. The apparatus of Claim 7 further comprising a pulse wheel which is coupled

to said controller and which measures said certain amount of acceleration.

[c9] 9. A vehicle including an apparatus for continually determining and displaying a maximum sustainable speed of said vehicle.

[c10] 10. The vehicle of Claim 9, wherein said apparatus includes a controller which receives certain signals and which uses said certain signals to calculate said maximum sustainable speed of said vehicle and a display portion which is coupled to said controller and which displays said determined certain maximum sustainable speed.

[c11] 11. The vehicle of Claim 10 further comprising a pulse wheel which is coupled to said controller, which measures an acceleration of said vehicle, and which communicates said measured acceleration to said controller.

[c12] 12. The vehicle of Claim 10 wherein said vehicle is operated at a certain speed and wherein said display portion displays said certain speed.

[c13] 13. The vehicle of Claim 12 wherein said controller calculates a second maximum sustainable speed and causes said second maximum sustainable speed to be displayed only if said second maximum sustainable speed differs from said sustainable speed by a predetermined amount.

[c14] 14. A method for operating a vehicle comprising the steps of: determining a maximum sustainable speed; and using said maximum sustainable speed to determine whether to cause said vehicle to perform a certain maneuver.

[c15] 15. The method of Claim 14 further comprising the steps determining whether the speed of said vehicle is greater than zero; and calculating said maximum sustainable speed only if said speed of said vehicle is greater than zero.

[c16] 16. The method of Claim 15 further comprising the step of displaying a predetermined value when said vehicle speed is zero.

[c17] 17. The method of Claim 15 wherein said step of calculating said maximum sustainable speed comprises the steps of: measuring an acceleration of said hybrid electric vehicle; measuring the torque of at least one axle of said hybrid

electric vehicle; estimating a grade force; and using said torque and said estimated grade to calculate said maximum sustainable speed only if said measured acceleration is greater than zero.

[c1 8] 18. The method of Claim 17 further comprising the step of determining whether the calculated maximum sustainable speed varies from a previously calculated maximum sustainable speed by a predetermined amount.

[c1 9] 19. The method of Claim 18 further comprising the step of displaying said calculated maximum sustainable speed only if said calculated maximum sustainable speed varies from said previously displayed maximum sustainable speed by a predetermined amount.

[c20] 20. The method of Claim 19 wherein said predetermined amount is greater than ten percent of said previously displayed maximum sustainable speed and wherein said method further comprises the step of displaying the current speed of the vehicle.